WHAT IS CLAIMED IS:

In a signal processor for processing at least two measured signals M_1 and M_2 each containing a primary signal portion S and a secondary signal portion N, said signals M_1 and M_2 having the following relationship:

$$M_1 = S_1 + N_1$$
$$M_2 = S_2 + N_2$$

where S_1 and S_2 , and N_1 and N_2 are related by:

$$S_1 \approx r_a S_2$$

$$N_1 \approx r_v N_2$$

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and where r_a and r_v are coefficients, a method comprising the steps of:

determining a value for a coefficient c, such that an error value e, given by the relation $e = S_1 - (cM_1 - M_2)$ is partially minimized; and

using said coefficient c in a waveform scrubber to remove some of the signal N_1 from the measured signal M_1 and thereby producing an approximation A_1 to said signal S_1 , where $A_1 = cM_1 - M_2$

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- The method of Claim 1, where A_1 , M_1 and M_2 are frequency domain signals.
- 3. The method of Claim 1, further comprising the step of displaying the resulting clean signal on a display.

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- 4. The method of Claim 1, wherein said first and second signals are physiological signals, further comprising the step of processing said clean signal to determine a physiological parameter from said first and second measured signals.
- 5. The method of Claim 4, wherein said physiological parameter is arterial oxygen saturation.

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- 6. The method of Claim 4, wherein said physiological parameter is an ECG signal.
- 7. The method of Claim 2, wherein the first portion of said measured signals is indicative of a heart plethysmograph, further comprising the step of calculating the pulse rate.

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A physiological monitor comprising:

a first input configured to receive a first measured signal M1 having a primary portion, S_1 , and a secondary portion N_1 ;

a second input configured to received a second measured signal M₂ having a primary portion S₂ and a secondary portion N₂, said first and said second measured signals M₁ and M₂ being in accordance with the following relationship:

$$M_1 = S_1 + N_1$$
$$M_2 = S_2 + N_2$$

where S_1 and S_2 , and N_1 and N_2 are related by:

$$S_1 \approx r_a S_2$$

 $N_1 \approx r_a N_2$

and where \r_a and r_v are coefficients;

a first signal processor, said first signal processor configured to compute said r_a and said r_v using a transformed representation of said signal M₁ and a transformed depresentation of said signal M₂;

a waveform scrubber having a first input configured to receive said first measured signal, and having a second input to receive said second measured signal, said waveform scrubber providing an output corresponding to an approximation of S_1 ;

- 9. The physiological monitor of Claim 8, further comprising a second signal processor, said second signal processor configured to compute selected blood constituents from said first and second measured signals.
- 10. The physiological monitor of Claim 9, wherein said selected blood constituent is arterial blood pxygen saturation.
- 11. The physiological monitor of Claim 9, wherein said selected blood constituent is venous blood oxygen saturation.
- The physiological monitor of Claim 9, wherein said selected blood 12. constituent is carbon monoxide.
- 13. The physiological monitor of Claim 8, wherein said plurality of possible values correspond to a physiological concentration.

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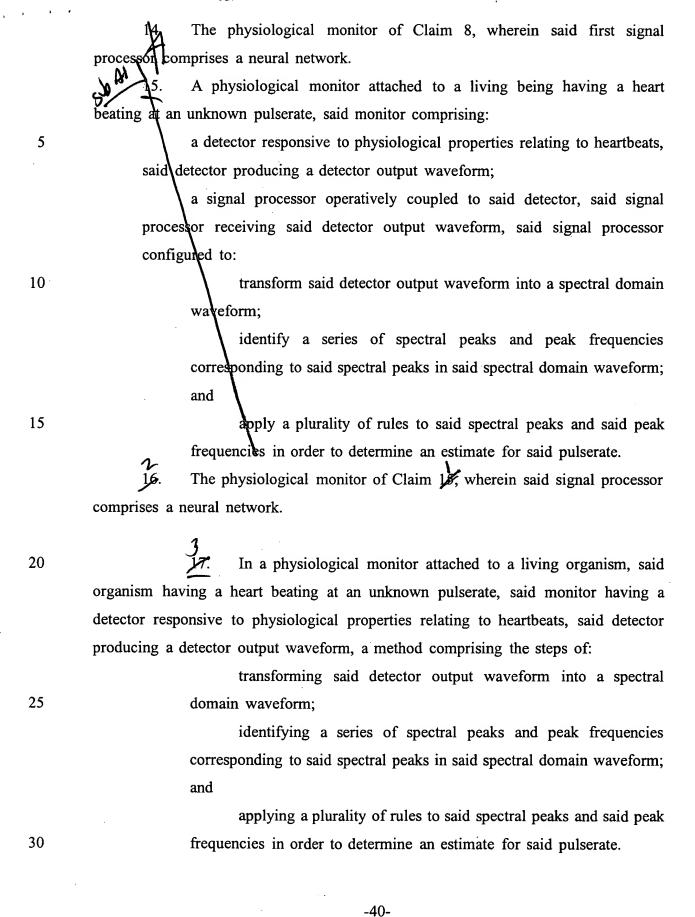
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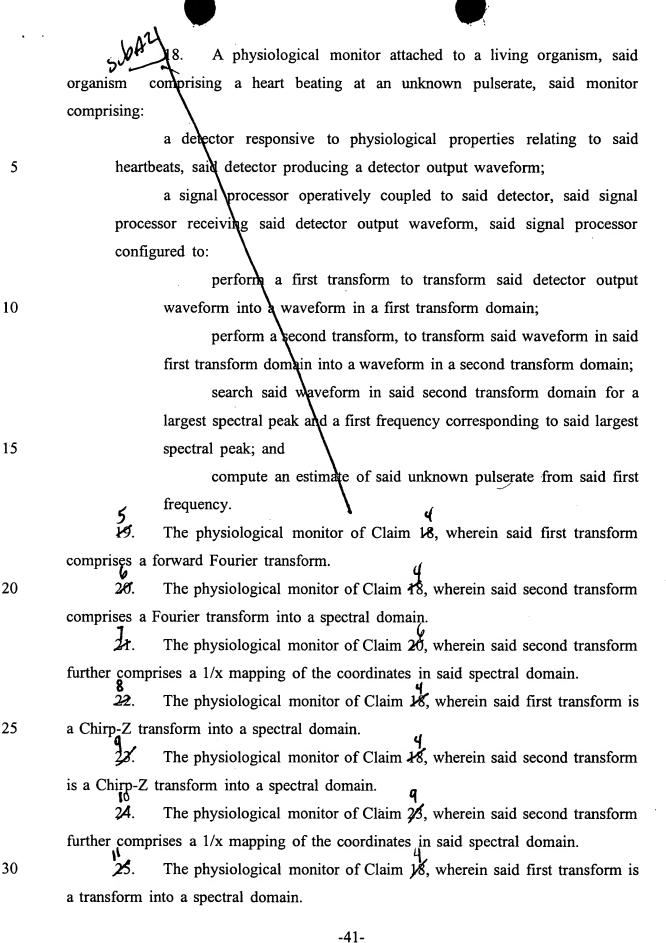
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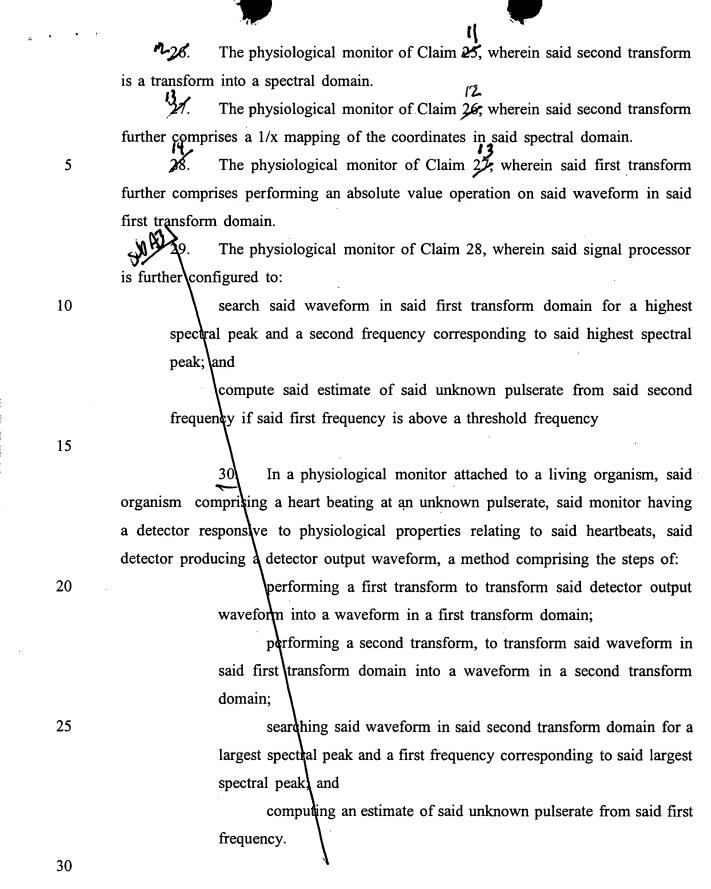
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